





## SHEFFIELD, ASHTON-UNDER-LYNE, AND MANCHESTER RAILWAY COMPANY.

The half-yearly general meeting of the proprietors of this railway was held at the offices of the company, on Wednesday, the 15th inst. The attendance of the proprietors was very numerous. The chair was taken at twelve o'clock by JOHN PARKER, Esq., M.P. (chairman of the board of directors).

Mr. PARKER (the secretary) having read the advertisement calling the meeting, the chairman asked the read of the company to the register of proprietors present.

J. B. J. PARKER, Esq. (one of the directors) then read the following report:—

To the Shareholders of the Sheffield, Ashton-under-Lyne, and Manchester Railway Company, in the above-named Station, Manchester, on Wednesday, the 15th of September, 1884.

Your directors have much pleasure in announcing to the proprietors that the improvement which commenced last autumn in the company's affairs, has been progressive, and that the works are rapidly approaching to completion. It is with great satisfaction, also, that they report upon the course sanctioned by the proprietors in September last, in respect to the issue of quarter shares. To the annual dividend of the company, the shareholders have attributed the reduced rate of interest at which money can be borrowed, and the extraordinary increase in the value of their property. Seven million of new, or from existing in Woodhead, were signed on the 15th of August last, for passenger traffic. The capacity and revenue with which the improved station at Dinning, has been constructed, and the perfect safety with which that magnificent work is daily covered by the public, are equally matters of congratulation. The traffic for the three half-years last past, as will be seen by the figures, has been a steady progression in value, as well as in the number of passengers. The passenger revenue of Woodhead, and the interest which it has attracted to the completion of such a work as the great tunnel, has already attracted many visitors for pleasure, as well as business, and for a long period will continue to do so. The opening of the line is, however, at hand, and the branches from Ashton, Stalybridge, and Garswood, will come at periods as nearly similar, that your directors have judged it prudent to abstain from much intermediate traffic for temporary stations. The accommodation, therefore, for the goods' traffic continues defective. They, however, are engaged in active preparations for the opening, in the spring, and have only to repeat their belief that their estimates of receipts have not been overrated, and their satisfaction that the opinion of the public has ceased to differ from their own in the value of your property.

TRAFFIC TABLE.  
Half-yearly ending June 30, 1884.

Passenger	Freight	Goods	Mineral	Other	Total
1,234,567	567,890	1,234,567	567,890	1,234,567	5,678,901
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**C**AMBRIDGE AND LINCOLN RAILWAY, VIA ST. IVES.  
PETERBOROUGH, DUNSTON, BOURN, and the CAM ST. IVE.  
WITH A BRANCH TO NOTTING, SCARFORD, and SPALDING.

The public are respectfully informed, that the above line of railway has been authorized and received the appropriation of a great number of influential persons in early intervention—that the surveys will shortly be completed, and that every necessary measure is in progress for hastening the Act in the existing session of Parliament.—A commencement will shortly be issued.

name, a programme of activity in action.

**JOINT SUBSIDIARIES**—Messrs. Humphreys, Langley, and Patten, London.  
Messrs. Smees and Sons, Exeter.

**BRANCHES**—Messrs. Barrett, Worcester, Birmingham, and Co.  
Messrs. Moore, London and Warrington.

**FRANCHISES**—Messrs. Smees, London and Warrington.

**LOCAL AGENTS**—Messrs. Smees, London and Warrington.  
Messrs. Smees, London and Warrington.

**LOCAL BRANCHES**—Messrs. Smees, London and Warrington.  
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**WESTMINSTER, DEPTFORD, AND WESTERN**  
TERMINUS RAILWAY.  
FORMING A JUNCTION WITH THE SOUTH-EASTERN, BRIGHTON, CROYDON.

**ANTICIPATED PUNJAB RAILWAY.**  
Vormen adjacent to Westminster bridge  
Capital amount, in 10,000 shares, of £10 each.—Interest, £1 10s. per share.  
Whereas the establishment of a new coal-carrying railway north of the metropolitan  
area would be advantageous, and the lands which they would otherwise render con-  
siderably unnecessarily obstructed. The metropolitan line to Dover and Brighton, as  
well as those of a more provincial character, derive their chief traffic from the north  
and western districts of London. From these sources the railway at immediate  
communication of approach has been not infrequently. The North Kent line, through  
Chatham, traversed, in the part of Margate, most ultimately becomes the vehicle  
of the Southern, British, and Belgian traffic, while Ramen and the Great Port-  
smouth line will carry the Dover, Jersey, and Channel trade, which, in their  
route, must traverse and penetrate all round the Chelmsford railway, with an outlet  
from the extreme east. In remedy the apparent evil, and give the full effect  
to such important railways, the present line is now proposed. By this integral pro-  
ject the purpose of the whole will be complete, and the necessary arrangements, and  
an one continuous effort adjacent to the seat of Government, the Board of Trade,  
the Admiralty, and the War-office, the most ample source of result and approval.

The yields tables, based on actual observation, after the broadest compilation, show a return of 7% per cent. When the price indexes are complete, these will be published, with the prospectus and the plan, sanctioned by the provisional committee, in the interim, applications for shares will be received by H. F. Barker, Esq., of the London and Lancashire Insurance Co., Ltd., 10, Abchurch Lane, London, E.C. 4.

**DIRECT NORTHERN RAILWAY, FROM LONDON TO**  
**YORK, BY LILCROFT.**  
 Capital of £2,500,000, in 25,000 shares, of £100 each.—(Deposits of £15s. per share.)  
 INCORPORATED IN ENGLAND.

<b>The Hon. William Ashley</b>	<b>William Despatch, Esq.</b>
<b>J. M. Bruce-Gardner, Esq.</b>	<b>Colonel William Greville, R.E.</b>
<b>John Brightman, Esq.</b>	<b>Major Thom. Goss Harcourt, M.P., R.S.C.</b>
<b>Richard Walter Carden, Esq.</b>	<b>William Murray, Esq.</b>
<b>Edward Cecil Carter, Esq.</b>	<b>William Mountford Stanes, Esq.</b>
<b>The Duke of Devonshire</b>	<b>John Pierburgh, Esq.</b>
<b>Lord Colonel James Michael Colley</b>	<b>Thomas Rafter, Esq.</b>
<b>Genl. R.A.</b>	<b>Edward Stacowe, Esq.</b>
<b>James Fergusson, Esq.</b>	<b>Edward Wallace, Esq.</b>

With powers to add to their numbers.

**Chairman—Sir John Lubbock, Bart.**

**Secretary—The Hon. Wm. Greville, Esq., F.R.S.**

**Bankers—The Union Bank of London.**

**Engineers—Messrs. Armstrong & Co., Ltd., and Messrs. Stephenson & Co., Ltd.,**

**LONDON AND BIRMINGHAM RAILWAY.**  
NOTICE.  
REDUCTION OF FARES AND TOLLS.

On and after Twenty, the 1st October next, a Reduction will be made in the Fares of Passengers, and in the charges on Carriages, Horses, and Goods, conveyed over the railway.

The Passenger Fares will be as follows:-

1st Class, by the 1st & 2nd, and 3rd. 10m. p.m. up Train	
(not conveying Special Class Passengers) for the whole distance up to London and returning	2s. each.
1st Class by all other Trains	2s. 6d.
2nd Class ditto	1s. 6d.
3rd Class, by one daily Train up and down (at the rate of one penny per mile)	1s. 6d.

and in proportion for intermediate distances.

Further particulars may be obtained on application.

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*Note*—The time of departure of the last up Train from Birmingham will, from the 1st October, be changed from 7-past 5 to 6 o'clock p.m.

**LONDON AND BIRMINGHAM RAILWAY—NOTICE—**  
 The said and the 1st of January next, a TRAIN, FOR THE CONVEYANCE OF THIRD-CLASS PASSENGERS, at a FARE PER PASSENGER PER MILE, will leave the KILNCHURN STATION DAILY SUNDAYS INCLUDED, at eleven o'clock in the morning, arriving at Four o'clock in the afternoon in Birmingham, where a THIRD-CLASS TRAIN will be in readiness to carry passengers forward to Liverpool, Manchester, &c., by the Grand Junction Railway, at the same price.  
 The Noturne Train will leave Birmingham daily at half past Two in the afternoon, and bring on the passengers by the Third-Class Train from the Grand Junction Railway, arriving in London at a quarter before Two o'clock. By order,  
 Station Station, Sept. 16. Signed: R. CREED, Secretary.

**LONDON AND BIRMINGHAM RAILWAY—NOTICE—**  
 The WARWICK AND LAMINGTON UNION RAILWAY will be OPENED at the COVENTRY STATION, where it JOINS the LONDON AND BIRMINGHAM RAILWAY, on MONDAY, the 24 December next.—Particulars of the trains and fares will be given previous to opening.  
 By order,  
 R. CREED, Secretary to the

**EASTERN COUNTIES RAILWAY COMPANY.—**  
**DIVIDED ON SHARES.**—Notice is hereby given, that, in consequence of  
the consolidation of the old and new shares of the company into stock, from and

where the stock of October next, in accordance with the resolution of the last General Meeting of the company, for the purpose of distribution of dividends, in satisfaction of the claims of the shareholders, the Act of Parliament incorporating the company, to be divided and made a QUARTER'S DIVIDEND, to the 15th of October next, at TWO SHILLINGS per share on all the new shares of the company, and ONE SHILLING AND SIXPENCE per share on all the original shares of the company, which dividend will be PAYABLE to all the proprietors who shall be on the books of registry of this company on the 15th of October next.

By order of the board,  
A. MULLERLEY, Secretary.

Glasgow, Edinburgh Station, Sept. 25.

**EASTERN COUNTIES RAILWAY COMPANY.—**  
EXTENSION TO CAMBRIDGE, RLY. BRANDON, and PETERBOROUGH.  
EXTENDING STOCK, No. 1.—Notice is hereby given, that the SECOND INSTALLMENT OF ONE POUND per share on each share in the above stock becomes DUE on the 15th of October next, and will be received by any of the company's bankers on the production of the call note issued to the registered proprietors of this stock. Holders of scrip or of treasury or other receipts for the deposits of 10s. 6d. per share in the above stock, who have undertaken to send in these documents for

...of the members to register, as the cases thereof, the names of the persons who originally executed the Parliamentary Contract Deed; and that the calls for the payment of the remainder of the Installments can then be made on the last-mentioned persons as co-defendants, and the holders of the writ or writs aforesaid, and

The shares may only be transferred after the right and title to the shares represented by the pass, which can only be transferred afterwards by transfer from the original proprietors.

By order of the Board, A. BUTLER, Secy.

Offices, Threadneedle Street, Sept. 29.

**NORTH WALES MINERAL RAILWAY.—FIRST CALL.**  
 OF TWO POUNDS PER SHARE (making, with deposit of  $\frac{1}{2}$  p. per share paid)—Twelve is hereby given, that, in pursuance of a resolution of the Board of Directors, shareholders in this company are required to pay a CALL of TWO POUNDS per share on their respective shares on or before Thursday the 10th of October next, at the Chamber of Commerce of London, Leadenhall Street, Messrs. WILKINS and CO., Clerks.—Interest, at the rate of 5 per cent. per annum, will be charged on all calls remaining unpaid at the date above named. By order,

**WEST CORNWALL RAILWAY, FROM TRURO TO**  
**FALMOUTH, REDRUTH, MATEL, AND PENZANCE.**

Capital £100,000, 3,000 shares, of £33 each.—Deposit of £5. per share.

OFFICES—4, NEW BRIDGE-STREET, LONDON.

MANAGING COMMITTEE.

Mr. Charles Lumsden, Bart., M.P. Carlisle	Edwin Lay, Esq. Lancaster
Mr. W. Pendergast, Esq., M.P. Westminster	F. M. Mearns, Esq. Old Broad-street
Mr. Philipps, Esq., M.P. Northampton	J. Minter Bacon, Esq. New Broad-street
Mr. John Parnell, Esq., M.P. Tynes	John Parker, Esq. Southampton
Mr. Russell, Esq. Mayor of Tynes	Richard Pearson, Esq. Portsmouth
Mr. John Sayers, Esq. Mayor of Portsmouth	Samuel Phipps, Esq. Portsmouth
J. A. Brown, Esq. Liverpool	P. Roberts, Esq. Old Broad-street
Samuel Carlisle, Esq., M.D. Tynes	Mr. Robt. George Rogers, Portsmouth
William Clark, Esq. Portsmouth	Francis Bond, Esq. Yorkshire
Samuel Cochrane, Esq., M.P. Portsmouth	Vernon Robinson, Esq. Bedford Row
Samuel Croft, Esq. Portsmouth	John Seabell, Esq. Manchester
W. Denby, Esq. Portsmouth	George Smith, Esq. Canterbury
J. Henderson, Esq. Old Broad-street	John Trevellick, Esq. Trevellicks
James Withers, Esq. Portsmouth	John Vignot, Esq. Broad-st.
L. Howard, Esq. Coleman-street	Leone Vignot, Esq. Old Broad-street

(With power to sell in duly authorized)  
 Brokerage—Clyde W. S. Bennett  
 10000 B. 10000—Messrs. (Messrs. Maynard, Bonaparte, and Co., Lombard street,  
 Brokerage—Messrs. Thomas and Francis Brown, Gray's Inn.

[illegible]

It is \$10,000 per annum, resulting in annual costs of \$10,000 to be divided among railroads, or equivalent of 10 per cent. on the capital to be contributed to the West coast railroad.

[illegible]

It goes to show, that the Company does not handle any prohibited goods, and neither of their two controlling interests, American and Foreign.

[illegible]

NO ENGINEERS, RAILWAY CONTRACTORS, MINING

[illegible]

**BRIGHTON, LEWES, AND HASTINGS RAILWAY**  
COMPANY.—In pursuance of the Act of Incorporation, the First General Meeting of the shareholders, duly called by public notice, was held in the large room

At a meeting of the directors of the London and Birmingham Railway, at the London-bridge Station, on Wednesday, the 20th of September inst., at One o'clock,  
**WILLIAM HARRIS**, Esq. (Chairman of the Board of Directors) in the Chair.  
 The advertisement calling the meeting having been read by the secretary, and the chairman having authorized the register-book of shareholders, by affixing their names to the end of the company, in pursuance of the Act, the following RESOLUTIONS were unanimously agreed to—  
 That the report of the directors be received and adopted, and their proceedings, up to this time, be approved and confirmed.  
 That the directors be authorized to cause surveys to be made of a line passing through Rye to join the South-Eastern Railway or at near Ashford, and of a line between Lewes and the Brighton Railway in a north-western direction, with a view of materially shortening the route between London and Hastings.

The best thanks of this meeting be given to the Earl of Chichester, Lord Gage, and the Hon. General Trevor, for their liberal contribution of £300 towards promoting this undertaking.

General Meeting would then be held, and called upon the secretary to read the advertisement concerning the same, which having been done, the following resolutions were also unanimously passed:—

That the proposition be accepted made by the London and Brighton Railway Company to take 10,000 shares of this company, with the option, within three calendar months after the completion of the works, to demand a lease of the railway, at a rent of 4s. per cent. upon the cost of the works, not exceeding the estimate of £2,500, upon the terms in other respects of the existing agreement between the companies.

That the best thanks of this meeting are peculiarly due, and are hereby cordially given, to the chairman and provisional committee, not only for the marked ability and zeal with which they have successfully overcome a talented and energetic Parliamentary opponent, but also for their services since the Act was obtained.

WILLIAM NASH, Chairman.

The chairman having vacated the chair, it was resumed unanimously—

That the best thanks of this meeting be given to William Nash, Esq., for his able and impartiality, and sincerity in the chair.

BOYMAN BOYMAN, Sec.

Office, 11, King William-street, London, Sept. 15.

**WANTED £7,000, for the TERM of SEVEN YEARS, to be SECURED, with interest at 4 per cent., upon the FREEHOLD LAND and PROPERTY of a COMPANY, established and incorporated by Act of Parliament, viz., cap. 18, and upon the TOLLS arising by virtue of the said Act. Any person**

desires to advance the same, or any part thereof, may obtain further particulars upon application to Henry Jackson, Esq., collector, 15, St. Helen's place, Bishopsgate street.

**NOTICES TO CORRESPONDENTS.**

**NOTE WALKS FROM TRADES.**—In the first part of the paper on this subject, in last week's Journal, the word volume was printed for and work, in the paragraph referring to Russian intercommunication.

**A. B. (Adolph).**—The paper shall be inserted in our next Journal, and we shall be glad to receive the proposed series.

**M. H. B. (St. Helen's).**—The paper is in course of preparation, and will form one of a series intended for early publication.

**F. B. O. (Great Yarmouth).**—We will endeavour to obtain further particulars, and give them publicity through our columns.

**Learned.**—“A Commercial” (next week)—**T. Mullins.**—“J. M.”—**Mr. Colham.** On the Improper Conduct of Joint-Stock Companies, and of the New Zealand

**THE MINING JOURNAL,**

**Railway and Commercial Gazette.**  
**LONDON, SEPTEMBER 28, 1864.**

We have before us the report of Mr. TREMENEER, on the effect produced by Lord ASHLEY's bill, as regards the employment of women and children in mines and collieries, from which it is gratifying to find that the miner and collier has not suffered from non-employment being given to his wife and children, who now employ themselves in attending to those duties which render the

father's home a comfort, and secure to him that domestic happiness which he could never contemplate while his wife and family were employed underground. Let us not, however, be considered

The quotations from the report of Mr. TARMENHEERE refer particularly to Scotland than to any other colliery district, and, while we readily admit the evidence he affords as regards that reality, we must needs say that in the north of England, Durham, and Newcastle, such scenes as those depicted are unknown, and the same remark may be equally applied to the Staffordshire and Denbighshire districts—the neat cottages, and the eight-day clock, with its cabbage garden, on our visiting the collier at Newcastle, was to us most gratifying, and in like manner have we experienced pleasure in visiting the humble cabins of the collier and miner in other districts. Our knowledge of Scotland, we admit, is more limited—

stricts generally, we can only express regret that such scenes present themselves. We have noticed the report in another volume, and next week shall have occasion to offer further remarks.

We are well pleased to find that the West Cornwall Railway is in a field, and that, in addition to the south line, we are now to have a line connecting Truro with Falmouth and Penzance. Among the promoters are the names of several gentlemen connected with the county, either as representatives or associated with its interests. We consider this company to be not only fairly started, but cannot doubt will receive the support of the public. In advertising to it, we do as regards the district, being one which claims our attention on its mineral character, while we offer no opinion as to the advantages which the speculation presents to those who may embark their capital—while the high character of those whose names appear, are sufficient to justify a conclusion that it holds out promise

the shareholders. The railway may be naturally expected to be double, so facilitating communication with the various mining districts west of Cornwall, while the packet service from Falmouth

A meeting was held on Monday last, when Mr. F. W. W. Fennel presided, the proceedings at which must have been gratifying to one and all. We have not space for notice this week, and in our next shall advert to the main features which the meeting presented. We are glad to find, that Mr. ARTHUR LEWIS GOWAN, chairman of the Miners' Company, expressed not only his intention, to take shares in the railway, but also the deep and lively interest he felt in the prosperity of Cornwall. With such men and

The re-union of the British Association for the Advancement of Science has again taken place—York being this year again honored

The presence of these distinguished men of science who take part in the proceedings. Several papers treating on the geological history of the country, as well as others relating to zoology, seem to be of interest, and will receive attention in our early numbers. We regret there should be any one subject relating to the proceedings of the association which should call for comment more than that of geology; but we should feel ourselves considerable more than we have done, if we omitted the account of finances submitted, which, doubtless, will elicit attention in other quarters.

It appears, from the statement before us, that the receipts for the first session amounted to \$1272 1/2, including therein the balance of last report of \$366 1/2, and the sum of \$1000 received from the State of New York.

of almost 11000, of which 1111 became divided as such. We now have some 1000 larger, where we considered the utility of an increase of this nature, but we have that with such some of ex-

addition as 4,000. salaries for the secretary and accountant, being not 60 per cent. on the annual expenses, the funds of the association are not likely to increase. Surely a meeting of one week usually should not be subjected to an heavy charge, and one at one present session will have the effect of making some reduction in the railroad fare's expense.



## REGULATION OF JOINT-STOCK BANKS.

The Act of Parliament passed in the last session for the regulation of joint-stock banks being now in operation as the law of the land, the various banks in the City are preparing for the registration of their public officers, in order to avail themselves of its privileges; as it is at this moment of considerable importance, we shall give an abstract of the Act, sufficient to inform our readers of its general principles. No company of more than six persons, established since the 6th May last, can carry on business as bankers but by letters patent, granted under the Act; those established before, may carry on business until the letters patent have been granted. Before commencing business, every such company must petition the Queen to grant such patent—the petition to be signed by seven, at least, of the said company, with the names of all the partners, and their residences—the proposed name of the bank, and the name of the street or place where the business is to be carried on—the proposed amount of capital (which is never to be less than 100,000*l.*), and the means by which it is to be raised—the amount then paid up, and when and how invested—the proposed number of shares in the business, and the amount of each share, not being less than 100*l.* each. The petition is then to be referred to the Board of Trade, who will report to the Privy Council, from whom the patent is to emanate. The deed of partnership is to be in accordance with a form to be approved by the Board of Trade, containing provisions for holding ordinary and extraordinary general meetings—the management of the company's affairs—for the retirement of at least one-fourth of the directors yearly, and preventing their re-election for at least twelve months—for publishing the assets and liabilities once a month—auditing the accounts—for the communication of the auditors' report, balance-sheet, and profit and loss account to every shareholder—and the deed executed by the holders of at least half the shares, on which 10*l.* have been paid-up, is to be annexed to the petition. No company is to commence business until the deed is executed, and half the amount of capital paid-up. The company is to be incorporated, but such incorporation not to limit the liability of the shareholders. Clauses 8 to 15 enact the methods by which actions are to be brought, and execution is to issue. A memorial, containing the same information as the petition, is to be lodged with the Commissioners of Stamps between the 28th day of February and the 23rd day of March, and others also of occasional changes in the direction, management, &c., and the Commissioners are to give certified copies of such memorial on payment of 10*s.*; and all the parties named in the last memorial are to continue liable to all legal proceedings. No transfer of shares is to take place until all calls are paid.

The Act then gives power to make calls, to charge interest on calls unpaid, the enforcement of calls by action, and the forfeiture of shares for nonpayment of calls, which forfeiture is to be confirmed by a general meeting. Companies in existence previous to the 6th May last, may continue their trades for twelve months after passing the Act, during which time they are to present the petition to the Queen, in manner before-mentioned, to be brought under the operation of this Act. It is further enacted that every company of more than six persons, carrying on the business of bankers, shall be deemed a trading company within the provisions of the Act, for the regulations of joint-stock companies.

## REGULATION OF JOINT-STOCK COMPANIES.

The Act of Parliament for the regulation of joint-stock companies, which is now published, comes into operation for general purposes on the 1st of November next, but for the registration of the several officers to be appointed in pursuance thereof immediately on its passing. The act applies to every joint-stock company in Great Britain and Ireland, except Scotland—and in Scotland, if they have a place or places of business in any other part of the kingdom. The term "Joint-Stock Company" to imply every partnership where the capital is divided into shares, every assurance company, and every partnership which at its formation, or by subsequent admission, shall consist of more than twenty-five members. Special provisions are reserved for all companies for constructing works of such magnitude that they can only be carried out under an Act of Parliament, and also chartered and incorporated companies. Before prospectuses are issued, the promoters of every joint-stock company must register, at the office provided for the purpose, the proposed name of the company, its intended business or purpose—the names, residences, and occupations, of its promoters—the proper direction of the house of business or office—the names of the members of the committee, with the written consent of each to take one or more shares in such company—the names of the officers and subscribers, with their addresses and occupations—and a copy of every prospectus, hand bill, or advertisement—and from time to time such further registration as any change in the above particulars may require—the promoters, on each first registration, to be entitled to a certificate of provisional registration. In case of failure in such required registration, the promoters are liable to a penalty of not exceeding 20*l.* Promoters of companies may appoint a solicitor to make returns, who is then liable in case of failure. Before any company can commence business, they must complete the registration, and execute a deed of settlement, stating the amount of proposed capital, say additional capital, number of shares, list of subscribers to be set out (with the number of shares held by each), names of directors, and a list of officers, &c. Such deed is to contain a covenant on the part of every shareholder, with a trustee on the part of the company, to pay up the amount of the instalments on the shares taken by them; and the deed must be attested by the certificates of two directors, and then registered in the proper office. In addition to this complete registration of the formation of the company, the directors are required, in January and July in every year, to make returns to the registrar, of all the transfers of shares that have taken place, the names and residences of the then holders, and all changes of names by marriage or otherwise; the penalty for omission is 20*l.*—and the rights of the shareholders are entirely restricted, so no profits or dividends can be paid until such registration and return is made in accordance with the Act. Those registers and returns are to be open to public inspection on payment of fee, to be appointed by the Commissioners of the Treasury, not to exceed 1*s.* for each inspection; and copies may also be had on payment of not exceeding 6*d.* per folio of such copy or extract.

The appointment of the registrar and assistant-registrar is vested in the Board of Trade, and the hours of attendance to be from ten until five o'clock. The fees for registration are as follow:—For a certificate of provisional registration, 1*l.*; for a certificate of complete registration, 1*l.*, and 1*s.* additional for every 1000*l.* value of capital, as declared in the Deed of Settlement; for an annual certificate, 1*l.*—extracting or receiving any gratuity or reward is a misdemeanour. If, before a certificate of registration is obtained, the promoters of a company, or any persons employed by them, take any money for allotment of shares, or any interest in the concern, every such person is liable to a penalty of 20*l.*, recoverable the same as by action of debt. On complete registration under this Act, companies are empowered to use the name of the company, adding the word "registered"—to have a common seal, to sue and be sued, to enter into contracts for execution of works, to purchase lands, lease certificates of shares, receive and borrow money, declare dividends out of profits, hold general and special meetings, and perform all other acts necessary for carrying into effect the purposes of the company. No shareholder can receive any share of the profits of the undertaking until he has signed the Deed of Settlement, and paid up all instalments or calls due from him, and been duly registered in the company office. Penalties for persons acting as directors without being qualified, by holding at least one share in such company, 20*l.* Persons interested in any contract to be made on behalf of the company, or in the sale or purchase of land, materials, &c., are prohibited from voting, or otherwise acting as directors; and all acts of fraud or wilful omission of directors or officers, are punishable as misdemeanours. And there are to be appointed, and to have considerable access to the books of all companies.

All bills and promissory notes to be signed by two directors, and countersigned by the secretary, but who are to be as faithful as the shareholders of the company. A share register is to be kept, and every shareholder is to have the privilege of searching such book at all convenient times, gratis. Directors are required to have at every place of business of the company printed copies of an index or abstract of the Deed of Settlement, also for the production of the same. For violations of any of the conditions or regulations, application may be made to the Board of Trade, who are to receive and decide thereon. This Act does

## STATISTICS OF PRODUCE OF COPPER MINES, WITH AMOUNT OF SALES, PRICES OF METAL, &amp;c. FROM 4TH JULY TO 12TH SEPTEMBER, 1844.

CORNWALL.										SWANSEA.			
Date.	Qrs.	Copper.	Amount of Sale.	Average price per ton.	Av. price of metal.	Sheet copper.	Cake copper.	Weekly low stand.	Difference between metal & low stand.	Tons.	Amount.	Av. price per ton.	Av. price of metal.
July 4.	3790	204 0	20,352 2 6	5 7 6	75	104 15	84 15	84 15	0	2032	27,096 11 0	13 8 1	13 8 1
11.	3916	196 4	13,812 11 6	4 9 6	81	107 3	83	86 13	6 13	2248	30,185 16 6	13 8 8	13 8 8
18.	3471	191 0	12,978 8 6	5 5 6	71	103 10	84	87 6	3 6	4338	31,869 13 0	11 19 8	11 19 8
25.	3698	206 15	18,945 7 0	4 18 6	72	105 17	84	88 13	4 13	2950	31,206 15 0	13 17 6	13 17 6
Aug. 1.	3764	214 17	14,685 9 0	5 5 6	72	103 14	84	87 13	3 13	3261	31,979 18 6	13 10 10	13 10 10
8.	3909	225 13	15,327 1 6	5 5 0	72	103 5	82	87 3	4 3	3106	37,679 15 6	17 9 9	17 9 9
15.	1938	149 3	9,894 6 0	5 1 6	71	102 16	84	86 9	3 9				
22.	3387	204 19	17,063 10 0	4 19 6	71	104 15	84	87 17	3 17				
Sept. 2.	4416	356 16	24,549 14 0	5 13 0	81	109 10	84	87 8	3 8				
9.	3375	255 10	17,128 4 6	5 2 6	71	103 7	84	86 19	9 19				

not extend to mining companies, nor anonymous partnerships in Ireland. The registrar is to make to Parliament an annual report of the number of registered companies, a list of cases of penalties for failure, a return of regulations by the Board of Trade, of persons holding the situations of registrar and other offices, of the amount of fees paid, bankruptcies of joint-stock companies, and of all alterations and modifications made by the Privy Council in conditions and regulations to be observed by joint-stock companies.

## SHEFFIELD AND MANCHESTER RAILWAY.

In another column will be found the comprehensive and important report of the directors of the Sheffield, Ashton-under-Lyne, and Manchester Railway, presented to the half-yearly general meeting, held on the 25th instant; and not only by parties interested in this line, but by the railway world generally, it will be read with considerable interest, as evincing a determination on the part of the directors to avail themselves of all possible opportunities for promoting the interests of the proprietary over whom they preside—and where there are indications of any competing lines springing up, or such as, by speedy completion, are calculated to form valuable adjuncts to the main line, to step in, and turn every chance to account. Various branches are now under consideration—or, indeed, their formation may be said to be actually undertaken by the directors—all of which will most evidently prove profitable feeders, accommodate a large population in the surrounding districts, and add much to the importance of the line. By these energetic measures on the part of the directors, the transit of passengers and goods is secured to the company over a considerable surface of country, right and left of their original line, which must add in a most important degree to its ultimate value, and secure to the shareholders a far greater return for their investment than was at first contemplated. Progressive improvement appears to be taking place in the company's affairs, and the whole line, including the Summit Tunnel, is expected to be open in July next.

## ON THE GENERAL PRINCIPLES OF VOLTAIC ELECTRICITY.

Mr. Hoarder (of Plymouth) delivered a very able lecture at the Royal Cornwall Polytechnic Society, on the general principles of voltaic electricity, and its intimate connection with magnetism, together with some observations on the various conditions which modify electro-magnetism, and on the probability of its being employed as a motive power. The lecturer commenced, by alluding to the vast importance which the science of electricity had obtained of late years, in consequence of the very extensive application to various branches of art, of which it had been found susceptible. He referred to the various sources of electrical excitation, and described the different characteristics of the action of electricity excited in different ways, alluding more particularly to the different effects produced by the electricity of tension, excited in the ordinary way by the electrical machine, and voltaic electricity, or that excited by the chemical action of various elements upon metallic and other bodies. Mr. Hoarder then described the successive improvements which had taken place in the construction and arrangement of voltaic batteries, and explained the very great advantages derived from the modern contrivances of Daniel, Smee, and Grove. A voltaic battery was then excited, and the lecturer exhibited some brilliant experiments illustrative of the heat produced by the electrical current in its passage under different conditions; charcoal points were ignited, silver, brass, and copper leaves were decomposed, and the combustion of iron, zinc, brass, and copper, was shown by means of a large rocket contact breaker. The lecturer next alluded to the capability of the electrical current to develop magnetism in ferruginous bodies, when they were brought within the sphere of its influence; and explained many of the circumstances which modify the intensity of the effects produced. He expressed his opinion that notwithstanding the very partial sources which has attended the repeated attempts to employ electro-magnetism as a motive power, no obstacles exist which may not ultimately be overcome, and attributed the failure to the want of a knowledge of the most advantageous mode of arranging the various parts of the machines; since he showed that a very trifling modification of the relation between the battery, wire coil, and magnet, would materially influence the power obtained. He explained an engine on the vibrating principle, and showed that it involved a great sacrifice of material to obtain a very insignificant power; and then showed how much more advantageously power might be obtained by the employment of the rotating principle, which he illustrated by a powerful rotating engine invented by himself. In this machine nearly all these objections are removed, and, consequently, a far greater power is obtained with a much less consumption of material. The lecturer concluded, by explaining his magnetometer, for which the society had awarded him their first silver medal, and detailed its capabilities of considerable length, showing some most interesting phenomena connected with the influence which variations in the length and thickness of the wire, and the power of the battery, exerted upon the amount of magnetic attraction, obtained; and showed especially in one case that a battery which was capable of producing an attractive power of 60 lbs. with a given length of wire, would, when quadrupled, the length of wire retaining the same, only produce a power of 20 lbs.; thus demonstrating the fallacy of any attempts to estimate the value of electro-magnetism as a motive power, until all these contingencies can be provided against.

**ACTION OF PLANETS UPON THE ATMOSPHERE.**—M. Schaller, of Berne, has conceived a popular error as to the action of planets upon the atmosphere. It has hitherto been generally believed that planets decompose the æthereal acid of the air that surrounds them; M. Schaller, however, deduces from the experiments that he has made on the subject, that the gases which these bodies are not supplied by a decomposition of the air, but by the different solids which they contain, and which are diffused from the earth.

**ALABAMA MOON LEAD MINES.**—An important arbitration case respecting some extensive lead mines at Abolus Moor, involving property to the extent of 10,000*l.*, has been in progress during the week at the Coffee House, before Mr. Armstrong, the arbitrator. The Huddell Company are the plaintiffs, and the Gillingham and Co. Company the defendants; and so there are a great number of witnesses on both sides, the case will, probably, occupy a considerable time.—*Carlisle Post.*

**ST. ROLLER CHURCH.**—We have had occasion frequently to refer to this gigantic edifice, which, as our readers are aware, is the highest in existence. We now report to learn, by the Glasgow Citizen, that it is exhibiting considerable cracks as fissures in an upward direction—perhaps, on account of the vast height, but chiefly, we presume, in consequence of the constant lateral wind to which it is subjected. The two principal cracks are about half-way up, one on the east side and one on the west. Although the stability of the structure is by no means endangered as yet, the extraordinary pressure have determined, as a measure of precaution, to stop it with two or three considerable stay-rods. This appears a serious operation, when we consider the large dimensions of the chimney (nearly half diameter at base, and fourteen at extremity), and to render it much the height at which the stay-rods are necessary, will be an undertaking of some difficulty. For this purpose, a machine has been invented—we believe by Prof. Gordon, of this University—by which two men are at the ground level working their way up the west side of the shaft, to a station which, although it has the appearance of an affluence of steel and iron, seems, on examination, to be perfectly safe. The operation is an interesting one, and will become more so, as the workers ascend to ascend. We may mention that a second chimney has just been completed in the same tower, to the west of the great one. It is not, however, nearly so high, its height being only 100 feet—a model being here discussed, whereby the cracks which in modern times have pervaded the walls and buttresses, thereby obviating the necessity of carrying it to as great a height above the city.

## EXPERIMENTS ON THE EXPLOSIVE FORCE OF OXYGEN AND HYDROGEN GASES.

BY JAMES JOHNSTON, ESQ., WILLOW-PARK, GREENOCK.

In 1841 I took out a patent for obtaining motive-power from the explosive and condensing properties of oxygen and hydrogen gases. In order to ascertain the power and length of stroke which those gases would give when exploded in a cylinder, I commenced, on the 24th April, 1841, a set of experiments, of which I now give the results:—

The apparatus with which I made the experiments consisted of a strong cast-iron cylinder, accurately bored, so that its diameter was exactly two inches and thirteen-sixteenths of an inch.—This diameter gives a surface on the piston of six square inches; the piston was fitted very accurately into the cylinder—I have ascertained it to work perfectly air-tight; on the top of the piston there is a cross-head and spindle, for placing weights upon; the ends of the cross-head work in cast-iron guides; the gases are admitted to the cylinder by stop-cocks, and are exploded by an electric spark. I shall now describe the preliminary arrangements made before making each experiment:—I ascertained the weight of the piston, piston-rod, and other appendages, which the gases must move when the piston is put in motion, to be 9 lbs. 5 oz.; I then ascertained that, to overcome the friction of the piston, it required 5 lbs. 1 oz., together with its own weight; therefore, add 5 lbs. 1 oz. to 9 lbs. 5 oz., and we have 14 lbs. 6 oz., the weight, or force, required to overcome the friction of the piston. I now proceed to load, as follows, the piston, so that I would give the gases 5 lbs. per square inch of weight to lift.—Weight of piston, 9 lbs. 5 oz.; amount of friction of piston, 14 lbs. 6 oz.; amount of weight required to make up the 5 lbs. per square inch, 6 lbs. 5 oz.—Total weight, 30 lbs. This gives 5 lbs. per square inch of weight, as there are six square inches of surface on the piston. I measured the gases in the cylinder by the height to which I raised the piston; every inch of distance between the bottom of the cylinder and the bottom of the piston holds six cubic inches; when making the experiments, I always raised the piston to the height which I wished it to be at, by placing under the ends of the arms of the cross-head pieces of wood, made for the purpose; after the piston was thus raised to its required height, the apparatus was ready for the explosion, as the gases were admitted at the pressure of the atmosphere at the time the piston was raised; the gases were kept ready for use in a bladder, mixed in the proportion of two parts of hydrogen to one of oxygen.

Having described the arrangements for inserting accurate experiments, I now give the results in the following table, of which the first column gives the quantity of gas in cubic inches which was placed in the cylinder at each experiment; the second gives the weight that was placed on the piston in pounds per square inch of its surface; the third gives the height in inches and tenths of inches to which the explosion drove the piston; the fourth gives the height of the barometer at the moment each experiment was made; the fifth gives the height of the thermometer at the same time:—

Gas.	Weight.	Height.	Barometer.	Thermometer.
6	5	106.8	30.4	53
9	5	9	30.4	53
12	5	4	30.4	54
6	10	1	30.4	54
9	10	1	30.4	54
12	10	3	30.4	54
15	10	3	30.4	54
6	15	0	30.4	54
9	15	0	30.4	55
12	15	1	30.4	55
15	15	3	30.4	55
6	20	0	30.4	54
9	20	0	30.4	54
12	20	1	30.4	54
15	20	1	30.4	54
6	25	0	30.4	54
9	25	0	30.4	54
12	25	1	30.4	54
15	25	1	30.4	54
6	30	0	30.4	54
9	30	0	30.4	54
12	30	1	30.4	54
15	30	1	30.4	54
6	35	0	30.4	54
9	35	0	30.4	54
12	35	1	30.4	54
15	35	1	30.4	54
6	40	0	30.4	54
9	40	0	30.4	54
12	40	1	30.4	54
15	40	1	30.4	54
6	45	0	30.4	54
9	45	0	30.4	54
12	45	1	30.4	54
15	45	1	30.4	54
6	50	0	30.4	54
9	50	0	30.4	54
12	50	1	30.4	54
15	50	1	30.4	54

In the last experiment—viz., that in which twenty-four cubic inches of gas were exploded under a load of seventy-five pounds per square inch, the explosion was unable to lift the piston, it merely shook the weights.

The above table gives the maximum results of upwards of 200 trials, or experiments, which I have made on the explosive force of the mixed gases. In order to show that there is an incommensurable irregularity in the results of my experiments on the gases, I shall now give a few experiments which were made with the same gases, and under the same circumstances:—

Gas.	Weight.	Height.	Barometer.	Thermometer.
6	5	106.8	30.4	53
9	5	9	30.4	53
12	5	4	30.4	54
6	10	1	30.4	54
9	10	1	30.4	54
12	10	3	30.4	54
15	10	3	30.4	54
6	15	0	30.4	54
9	15	0	30.4	54
12	15	1	30.4	54
15	15	3	30.4	54
6	20	0	30.4	54
9	20	0	30.4	54
12	20	1	30.4	54
15	20	1	30.4	54
6	25	0	30.4	54
9	25	0	30.4	54
12	25	1	30.4	54
15	25	1	30.4	54
6	30	0	30.4	54
9	30	0	30.4	54
12	30	1	30.4	54
15	30	1	30.4	54
6	35	0	30.4	54
9	35	0	30.4	54
12	35	1	30.4	54
15	35	1	30.4	54
6	40	0	30.4	54
9	40	0	30.4	54
12	40	1	30.4	54
15	40	1	30.4	54
6	45	0	30.4	54
9	45	0	30.4	54
12	45	1	30.4	54
15	45	1	30.4	54
6	50	0	30.4	54
9	50	0	30.4	54
12	50	1	30.4	54
15	50	1	30.4	54

In the above eight experiments between the maximum and minimum rise of the piston, there is a difference of five-tenths of an inch; how this difference arises I am at a loss to know. A difference, of about the same extent, existed throughout all my repetitions of experiments. I have bestowed a great deal of labour and attention to find out how this difference arises, and I am satisfied that it has not its origin from any defect in my apparatus, or arrangements; I believe it arises from the difference of strength that may exist between the different sparks of electricity with which the gases were exploded, so it was with the spark from a Leyden jar with which I exploded the gases. I intend setting a set of experiments, in order to ascertain their point. When commencing these experiments, I attempted to explode the gases by the spark which is formed when contact is broken between the wires of a battery, but I found that this spark, although very bright, would not explode the gases. The battery which I used for this purpose was composed of eight Leclanché cells, with a plate of zinc in each, containing twelve inches square.

[This interesting paper was originally published in the Glasgow Polytechnic Journal for the month of June, 1844, and is hereby given in full, for the purpose of showing the incommensurable irregularity in the results of my experiments on the explosive force of the mixed gases.]

**CHLORINE ACID.**—M. Wöhler and Liebig have discovered a new triatomic acid, which is the product of the action of dilute sulphuric acid and oxide of manganese upon chlorate; it is called oxychloric acid.



**ORIGINAL CORRESPONDENCE**

ON THE BAR-IRON AND RAIL TRADE OF SOUTH WALES

*Stile de dore nel migliore gusto.*—GOLD PLATE.

(Excerpted from the *Atlantic Journal* of last week.)

Having reference to the same in another view, we shall still find proofs of the inadequacy of the estimated make to the future demand. Our exports of rails and ironware here for the past year (and the previous two years were nearly similar) amounted to about \$60,000 tons, which would leave 100,000 tons for our own railroads and home consumption of hardware. I have no means of getting at the exact home consumption of this latter description, but I conceive, from various considerations, that if such amounts, in years of unusual prosperity, 100,000 tons. Possibly, then, only 50,000 tons of rails per annum would be left for home supply, estimating the exports on the basis of past years, without taking into account the increase for foreign trade, and having a due regard to any probable extension of works. A glance at the above statement of the quantity of rails we are likely to require will show the insufficiency of this supply, allowing the longest season in time for the annual diffusion of construction. The railroads opened in Great Britain last year barely reached 195 miles; the average of the four previous years was under 100 miles—the deductions are, therefore, sure.

My object being, to explain the prospects of the bar and rail trade of Wales, only touching in the consideration the small proportion of Scotch and Staffordshire make of similar iron. I shall not be diffuse on the family iron requisite for chairs, bridges, and other castings, or the wrought-iron for engines, fastenings, carriages, and stations. Should the atmospheric system be generally adopted, a great additional quantity of iron will be required—the exhausting pipe alone, of proper strength, weighing near 350 tons per mile for a single line, presuming that a 15-inch diameter would be required for heavy traffic; so profound, however, it appears to me that the atmospheric, or hydraulic system, have a better chance of ultimate success. There is something unsatisfactory in the idea of locomotive-engines; they seem like the undisciplined perfection of a new consumption—see through the creative intellect, having the victim of the prevailing humor, was sincerely vigorous enough, in the excess of its own power, fully to divert itself from its annotated history—like the crystallic sheets half-suspending the flight of the winged insect.

In shipbuilding, iron is rapidly gaining ground, on the score of durability, lightness, safety, and economy; the perpendicular against it will fade with experience. There is a fine field for consumption. The tonnage of the kingdom is about three and a half millions of tons in the merchant marine alone—it would probably take a million tons of iron to replace this tonnage lost; crews of new steamers, of heavy iron machinery, etc. giving our island and colonies, besides the higher business needs.

In architecture, every day adds to its elegance, and the former with which it is contrasted argues well for its estimation. The 20,000 houses annually erected in Britain, exclusive of Ireland, would give great scope to consumption upon this head. Nearly all the new warehouses in Liverpool are being constructed internally of iron—doors, staircases, and window frames, included. In Staffordshire, the invention of the galvanised system, for ornamental and general purposes, and the cheap and ingenious application of iron to roofing, gates, stables, ironfurns, and general agricultural purposes, seems likely to insure a wide outlet, where we could scarcely have anticipated its application.

I had almost forgotten to allude to a source of conservation which will hereafter be of great importance—the repair of railroads. As yet, this has scarcely attracted attention, save in America, where the light rails find a ready response have already replaced mainline, and a heavier description is now universally adopted. The destruction of the rails will, from the inequality of the material and equality of the work, be nearly simultaneous on the same line—and once it commences, will proceed with untold rapidity. Every rail now laid down, or hereafter to be laid, may be looked on as the seed of a further demand.

In addition to the countries already named, there are others, where as yet railways are a dead letter, but which will probably hereafter feel their material influence. The enormous cost of them throughout is England is by no means a necessary efficient elsewhere, as the expense of one of the American lines have been under 100,000, per mile. The late reports represent India as originating an undertaking of this character, which may possibly be the parent of a numerous progeny; with labour comparatively abundant, with iron supplied her at half the cost of America, with natural capabilities of land, commerce and construction fully equal, by should not railroads be strenuously planned there, to bind and consolidate that disunited empire, and develop its boundless productions on equal as some commensurate with the riches of the soil, and the energy and grandeur of its boundaries and provinces. Jamaica is now completing a railway; the steel wheels may conclude her example. Denmark's first railway is lately finished. It exceeds to be behind her spiritual neighbours, and the rest of the world!—will not iron railways be powerful collectors of her magnificent lake traffic?—London's Canal was enlarged the time, how long has it not done her commerce?—the Government pays per mile the common mode there would suffice to subvert the limit. A double position between the Mediterranean, Pacific, and Atlantic Oceans is proposed, by railways across the isthmus of Panama and Central, and it is stated, that the Egyptian one is more than half accomplished—progress, truly. I shall adopt the expression of one great statesman and correspondent:—"Railways must progress;"—and conclude with a further description of the system, from a Latin author, almost of too good locality applicable:—

1. The first step is to identify the problem. This involves understanding the situation, gathering information, and defining the problem clearly.

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In the *Missis Journal* of the 18th instant, there is a paper by  
L. L. Postgepp, describing a fossil tree found in Postgepp's Min-  
erals, near Postgepp, Minnesota, which he describes as having  
the shape of a cone, and that it was found in the place where it was found  
as thirty years ago, it was during a heavy rain, in a thin vein of coal  
about 1/2 in. thick, with a strong rock core and outer shell; therefore, I  
to take down three feet of rock, to make a sufficient height for the  
to follow. The rock continued upon the coal for 100 yards, and  
at that distance was done. The rock left the top of the coal at an angle  
about 1 in 12, and a stream of thin shale was formed between the coal  
and the rock; it came to a surface edge, and increased in thickness.  
It was twelve feet thick; the rock above it still keeping its place, but  
as much thinner, as the shale increased in thickness; when the  
between the coal and the rock had attained its utmost thickness, about  
one foot, at which it continued for 100 to 200 yards, and then the rock  
came again upon the coal, the shale going out at nearly the same  
as it then is. From between the coal and the rock. When the shale  
on the coal and the rock had attained its utmost thickness (not in-  
to each end of the fragment, then found some apparent surface  
We had to break many of them, away to taking down the shale  
into height for length to follow, and several ways to be seen on the  
of the heavy coal, some of these petioles, where having a little  
of them repeatedly coming upon the top of the coal, and their  
heights the rock on the top of the shale; therefore, their height was  
the thickness of the shell that lay between the coal and the rock, but  
height of a rock of height is to be seen in any one of them; the lower  
the height, and is covered out to the core between surface  
on, something like the back of a young cone. I should be very glad  
to see any kind of L. L. Postgepp, or any one else, plenty of them  
like they may wish. Now, as I am rather doubtful about the matter,  
said to be associated with the one found at Postgepp, I put the fol-  
lowing question to Mr. James Calmes, which I trust he will answer  
with your standing friend:—Was there some observable in the cap-  
stone found was described by him in Postgepp's Mineral?

[illegible]

from the drippings from the rock falling upon the coal, and forcing the coal water by the sides upwards until the whole cavity was filled up to the rock; and the coal water so pressed upwards all round the sides of the stratigraite formation, produced by the rock above, would form the thin coating of coal which "W. L." calls carbonized bark, and which generally is found accompanying such formations. I know there is a great deal of talent and ingenuity in those two rising geologists—"W. L." and Mr. James Cadmon—and I should feel greatly obliged by their attention to the subject of this communication. I can show many of those so-called fossil trees in their natural situation undisturbed, and standing just as they were formed.—*Massachusetts, Sept. 22.* ————— T. DARRIN.

## CHOKEDAMP AND ITS REMEDY

Res.—The effect of quicklime as an absorbent of carbonic acid gas is well known. But quicklime must not be thrown down a well, where there is a person being in a state of asphyxia, and merely lowering a bucket full of quicklime will be of very partial service. The total destruction of the gas in a well, in the absence of human life, is more promptly and efficiently accomplished by throwing down "cream of lime"—that is, quicklime mixed with water to the consistency of cream. I had recommended, in the case of asphyxia, to dash down cold water, and, still better, to divide the stimulus by using the rim of a watering pan or a colander. Its effect would be threshold; it would condense the gas, convey pure air to the victim of asphyxia, and counteract the narcotic effect on the brain. I was afraid to use lime water in such a case, but I find that I can now recommend it safely, and, of course, its effect would be much more prompt and decided than cold water simply. The watering pan should be here used; indeed, I find a Gaiwan pig, under asphyxia from carbonic acid, immediately recovered in a glass cylinder, by a shower of lime water. I have already alluded to you our mode of ~~enveloping~~ the destructive atmosphere of carbonic acid gas. There is yet another very neat and successful plan. It is this:—A tube terminating in a conestome mouthpiece, to render it light, is connected with a vessel containing at the bottom two or three inches in depth of lime water, or a solution of a stronger consistency. A pipe connected with the external atmosphere dips into the solution of lime, so that the air, in passing through the water, is deprived of its carbonic acid; a small pipe from the top of the mouthpiece will allow the lighter nitrogen to escape, facilitated by the increment of temperature which accompanies its evolution. The brush will explain my meaning. As well as the practice sometimes adopted of smoking tobacco through a tube; indeed, if the act of inspiration, which is intermittent, be thus effected, a pure atmosphere would be breathed, while the act of expiration may be effected in the usual way.—*Suppl.* 24. J. MURRAY.

## MINE VENTILATOR

WIA.—In accordance with Mr. Phillips's suggestion, I enclose you a drawing of my model ventilator, on a scale one-quarter size. I find, upon referring to the machine itself, that my former description is not quite correct; it has two vanes, instead of eight, and is one and a half inch in diameter, instead of two—but I am of opinion that it would be equally, or even more, efficient, with only eight vanes, and with the breadth reduced one inch. As it is, I feel confident that I should speak within bounds if I state, that the current of air which may readily be passed through it amounts to from 1000 to 1200 cubic feet.

Benjamin Brown.  
(We have received the drawing, which can be inspected at our office.)

**WILL HOPKIN**

Now, I have read your correspondent's letter (Mr. Vivian) on this subject, which, I think, bears well on the point at issue; and I think that it is only due to the mining community from the patronage (whether it be Mr. Sew Smith, or whoever may be the manufacturer of the wire rope), that an explanation should be afforded. You have given the date on which I made the comparative statement which appeared in your *Journals* of 21st ult. and the 7th inst., and I think the manufacturer owes it to truth, as well as to the public, to set us right on this question. I have just applied the wire rope, nor shall I do so, until the matter is diagonically set up.—*Chesham, Sept. 24.* A. MARSH, & Co., etc.

## ACCIDENTS IN MINES

I read with much interest your remarks on accidents in mines, equally regret with yourself that this important subject does not elicit attention on the part of your correspondents. The matter is one of interest, and the miner must feel indebted to you for the part you have taken; but it is next to impossible for individual exertion to effect good. I shall be most happy to assist in the attainment of the object here in view, and trust that those interested will lend you a helping hand. In your benevolent endeavours to promote the interests of, as well as to protect the life, the operative miner, I cannot give you any cord, and thanks for your exertions. I remain, your's, &c.,

Wm. A. Cresswell, Esq.

St. Petersburg, Aug. 26.

## ON PLUMBAGO.

3.—The formation of plasmids as a natural phenomenon, and process, is a problem of very curious interest. I cannot help thinking the experiences and subtle agency of electricity is constantly connected in its formation in the subterranean world. I will not, however, venture to speculate. I am little of a theorist, having more the "mother-of-dreams, and anxious to apply the truths of science to practical purposes. Some of my lucubrations, indeed, may be rather outworn from their specific object of the *Mining Journal*, but all of them, I trust, are freely connected with science and its successful issue. You will be at liberty, and, therefore, to tell my tale in my own way. I most freely say, that the great object of my life has ever been an earnest wish to do my fellow-creatures—endowed of this charge, the construction of a new world, in my estimation, has half their intelligence and value—*fine* factors. I must beg you to excuse this notice.

When we are at present indebted to Rowland and Martin for our  
if not almost exclusive, supplies of phosphors. The Rev. J. J. Frost,  
a worthy friend of mine, and long a missionary in Madagascar, I  
however, observed, presented to me a specimen of phosphors from that  
interesting, but heathen, island, closed at once against science and  
by its "coral tigers." When we consider the successful appli-  
cation of voltaic and magnetic electricity to plating and gilding, &c., and  
which process it slowly holds out to the combination of cast-iron, it is  
not too that it negates our prophetic say to discontinue all distinct  
application to the improvement of steel, and, I will venture to  
be manufacturers of artificial phosphors. Permit me to state, on point  
there is a host of more important connected with electric phos-  
phors, but one, so far as I know, entirely hitherto uncombined—it is the  
dry or brittleness of ferrous oxides, as affected by their electric condition.  
If the copper plate of the voltaic circuit comes in contact with  
it, the former becomes so powder. I have an friend, who expects  
to be essentially strengthened by the judicious application of electricity.  
I have one of the discs of iron which the Humbergery Navy had  
as a substitute, on galvanic principles, to the copper sheathing of  
it is somewhat lighter, cuts like phosphors, and with a similar strength,  
has all the characteristics of phosphors, instead of being a sub-  
stitute of the ordinary panell. ————— J. Macdonald.

## WILLASTON'S WIFE.

[illegible]

## REFERENCES

... to say that Dr. J. C. Smith treated himself as a true French Pharmacist, for the application of the nitrous acid gas produced from sulphuric acid to powdered zinc, placed on a heated iron plate, this very acid is formed in every chemical process, or in a high condition of the atmosphere—a powerful disinfectant, certainly injurious to disease. A combination of the reversed proportions, sulphuric acid and zinc, produces nitrous acid gas. It is this acid gas for the formation of nitrous on walls, as well as at Tintern, in Wales, those found among the ruins of Babylon, and which stone is at Athens, in Persia.

ETHER AND ITS VAPOUR A PROPELLING POWER.

812.—It has not struck me as remarkable, that an experiment which every electrician is familiar with, and has often repeated—viz., the propulsion of the ball from a small mortar, by means of the electric spark on a drop of oil—has not been practically employed on a large scale. The expansive power produced by the action of electricity on ether is immense, and, of course, its propulsive energy great, as well as that of the explosion of ether, mingled with atmospheric air. That gunpowder and the match will be ultimately superseded, there can be no doubt. The human mind is now directing, more earnestly than ever, its energies and attention to the practical application of the truths of science—facts which have hitherto remained useless on the shelves of the philosopher.

J. MURRAY.

Blackburn, 1842.

THE LONDON AND YORK RAILWAY

San.—I perceive, from an article in the *San* of yesterday, that the capital embarked in the present railway route from London to Leeds alone is said to exceed 11,000,000*l.*; and that, by the proposed line, it is calculated that town will be reached (without reckoning those branches which are not connected with the direct route) for one-fourth part of the above sum—that Hull will be brought fifty miles nearer London—that, on the entire line, there will be no gradient higher than 1 in 800—that there will not be any tunnel, and no cutting exceeding thirteen feet—and that 2,000,000*l.*, it is calculated, will be saved from the experience attained through the errors of others—errors or mistakes, which time alone could rectify. These are great encouragements. Nature seems to have opened a way for the line, and I trust the grandeur of such prospects will not be marred in the execution of the project. But, in every engineering work, *proportions* are, as it were, everything. It will matter little that Nature has found the company the best "through" line in the kingdom, and that the traffic of the counties it traverses is of prodigious extent, if the proportions and arrangements of the undertaking are not well adapted to the necessities of its prospects. Trains capable of conveying the produce and manufactures of districts larger than some of the continental kingdoms, should, when once it is completed, be constantly moving over this line, with proper intervals between them to insure regularity and order. Let, then, the eminent engineer who has succeeded to all the honour and responsibility of constructing this great railway, and the company who promise to establish it, lay it down as a principle, that stability and power are in all things be its characteristics; there must be its resources when it is at "high pressure" work, as it soon may expect to be. Let them abstain on having daily, if not hourly, to drive trains of the gross weight of 150 tons to 200 tons; and by their thus rendering its most favourable gradients fully available, THE YORK, by the greatness of its traffic, which consideration of charge will insure, and which the cheapness of its construction will fully warrant, through one of the last in point of time, will be the first railway completely to realize the promises of the original projectors of this great system of transit, which lead the public to expect rapid travelling at fares far below those of the old coaching system.

## MINING REPORTS

Mr. M. fully agree with you in your strictures on the weekly mining reports which appear in the columns of your paper, for never were any suppositions more idle or fallacious—while the directors and principal shareholders, who have connections or agents in the county, are in possession of minute details as to the working of the mines and the prospects they present. I would have reports, as you suggest, at all times where any news occurs which is of importance to communications; but the twaddle of tribute ground, "good tribute ground," "very good tribute ground," "spots of ore," are so vague and indefinite, that while such statements are calculated to cover the ignorance of those who report, they leave the shareholders utterly unable to discover whether the mine is progressing better or worse. Certain it is, that some agents furnish us with an estimate of the value of ground in course of working, but, as they do not the same time tell us what is the cost of driving, or the tribute at which pitches are set, I think that you might, with a little vigilance, obtain this information; I would, therefore, suggest, whether the directors do it not, that you should give us the result of the monthly settings, and also if you should, as well as furnishing the account of sales, give us the cost of monthly costs. A hint to you will, I feel assured, be sufficient to secure your hearty co-operation.—*West. 30.* A. M. ANDERSON.

We thank our correspondent for the hint; we feel, with him, that the *re-  
sult*, generally speaking, showed. If "An Adventurer," and others, will  
give us in our communications, and give the result of such facts as they may  
find, we have every reason to believe that our columns will be at all times open to  
the desired information. We do not see that there is more to be given;  
we have to contend with prejudices, and in many instances with jealousy;  
the desire to withhold, rather than to afford, the data which our corre-  
spondents require.

MR. HALL'S PLANS FOR THE PREVENTION OF SMOKE

—Is not the principle of Mr. Hall's plans for the prevention of smoke, and saving of fuel, as described in your last Number, at least remotely connected with that expounded at Allion Towers, by Mr. Richard Whitley Hall, who, I believe, has always admitted that he received the original ideas and suggestions from me? The principle is merely this:—Let the unassisted carbon, or, in common language, the smoke arising from imperfect combustion, pass through ignited coke, and it is thereby consumed. It may be illustrated by the introduction of a glass of indurated camphor, which yields much smoke, into a cone of indurated alcohol, when, from the perfect combustion thus secured, no smoke is emitted. The allusion to Mr. Whitley's name is accompanied by the very painful reflection, that as has been far too banefully from his ingenuity and his multifarious inventions. His steam-engine is well known, and practically appreciated, but something could be done to cheer the old of life, and the feeblest years. It is a hard lot to live for others, and to die unheeded even by those who have benefited by the individual and unaided efforts of these portions of the mind.—

*J. Murray.*

## NEW PATENTS FOR SEPTEMBER

(From the *NEW YORK HARBINGER*,  
*Review, Jan. 1904, (Continued, still ongoing, for improvements in the*  
*nature of articles for winning prizes.)*

*in flowers, botanical groups, and* **A. S. Lamb, Washington**, *applies, chemicals,*  
*improvements in the manner of arrangements used in making illustrations, printing,*  
*Paris, floral design, grass, for improvements in printing. A communication to*  
*Paris, design's system, still ongoing, and* **W. G. Kelly, Kentucky**, *steel, steel,*  
*improvements in the form of steel for drawing, for improvements in*  
*cutting threads, and in the manner of manufacturing.*

*in printing, (chemicals used, and in the manner of manufacturing, for*  
*the preventing of stains or discoloration on wall-paper, or in increasing the durability*  
*of articles arising therefrom. (Still a communication.)*

*William, Ligonier, North Wales, for certain improvements in the manner*  
*of artificial stone.*

*Patent, various, removal of stuff, for improvements in the manner of printing*  
*and copying lines obtained from various processes. (A communication.)*

*for the printing and printing, steel-plate, printing, for a certain improved*  
*printer. London, still ongoing, and* **G. L. Long, London, England, for improve-**  
*ment, New York, ink, ink, printing, and steel.*

*in China, Washington, groups, Washington, mechanical, and* **J. Reed, New-York,**  
*steel, steel and the same, for improvements in the construction of articles*  
*for cylinders and bars, and for other uses.*

*Steelwork, Baltimore, Ohio, Ireland, for certain improvements in the*  
*construction of a method of propelling vessels on the water.*

*in printing, New York, mechanical, negative printing, for certain improve-*  
*ments in the manner of printing for carrying or carrying prints, cards, or other*  
*articles. Will design, steel, printing, for certain improvements in the construction*  
*of ink ends, steel, negative steel, and various of use.*

*Steel, Illinois's, steel, New York, chemical, for certain improvements in the*  
*method of manufacturing chemicals.*

*in ink, chemical, printing, for an improved method for producing*  
*prints in printing, and for the method of manufacturing the same, and of*  
*copy and carrying a certain give or form to various printing articles.*

*steel, New York, mechanical, for improvements in manufacturing and printing*  
*articles, Chicago, steel, printing, for improvements in manufacturing and printing*  
*articles, for the manufacturing of steel, steel, steel, and steel. (A communication.)*

*in steel, England, paper, drawing, for a certain or combination of articles*  
*used for printing, printing, printing, and steel steel groups for other*  
*uses and other applications.*

*in steel, Washington, steel, printing, for certain improvements in printing*  
*and carrying the drawing process, and producing the illustration of*  
*printing. (A communication.)*

*in steel, New York, mechanical, printing, for improvements in printing*  
*articles, and in the manner of printing.*

**Acute cases scarce.**—Dr. Walscott has found that when attacked by a solution of caustic of copper to a temperature between 100° per cent., on the coils of copper is precipitated, there is a deposit of metallic zinc, and the formation of a new acid.



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